

AJAE appendix for
Evaluating the law of one price using micro panel data:
The case of the French fish market

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Note: The material contained herein is supplementary to the article named in the title and published in the American Journal of Agricultural Economics (AJAE).

Table A1. Proportion of Transactions Occurring in Each Fish Market

Auction market		Quantity (in tons)	Number of transactions	Contribution to total transaction per fish species						
				Monkfish	Sole	Langoustine	Sea bass	Hake	John Dory	Squid
Atlantic	AC: Arcachon	1,102.5	25,872	1.6	4.1		2.9	2.6	0.4	2.9
	AD: Audierne	319.2	10,907	1.8	0.4		3.6	0.2	0.8	
	BL: Boulogne	1,206.4	15,497		1.6		2.9		0.5	6.4
	CC: Concarneau	2,327.2	54,177	7.3	3.7	13.4	2.5	6.8	4.9	1.9
	CH: Cherbourg	805.9	20,215	1.8	2.2		4.0	0.1	2.9	3.1
	CR: Le Croisic	770.6	35,467	2.0	4.8	3.7	2.9	3.7	3.3	3.3
	DK: Dunkerque	374.4	6,372		2.2		0.5			0.2
	DP: Dieppe	185.4	3,578	0.1	0.5		0.6		0.7	0.7
	EQ: Erquy	1,902.4	30,865	5.7	2.3	0.2	2.3	1.6	7.0	6.2
	FP: Fécamp	188.2	3,792		1.3		0.3			0.2
	GD: Grandcamp	138.7	7,256		1.8		1.0		0.4	1.0
	GL: Saint-Gilles Croix-de-Vie	513.6	8,586	0.1	0.8		1.9	1.2		0.7
	GR: Granville	153.6	11,823	0.8	2.8		0.6		1.1	2.1
	GV: Le Guilvinec	6,961.4	91,265	21.1	3.9	16.3	3.0	6.7	20.0	7.3
	IO: Oléron	1,776.0	76,282	4.4	8.4	14.3	6.5	7.6	3.6	7.8
	LC: Loctudy	2,512.3	31,221	4.7	2.0	9.7	1.0	2.7	4.4	1.3
	LN: Lesconil	183.0	6,856	0.9	0.6	2.1	0.1	0.8	0.3	0.3
LO: Lorient	2,242.0	102,704	8.9	10.3	27.2	4.6	11.5	9.6	3.7	
LR: La Rochelle	928.6	24,716	0.9	3.3	0.8	2.9	2.6	1.7	3.3	
LS: Les Sables d'Olonne	1,870.8	48,502	2.9	7.8	1.4	5.5	4.3	3.3	3.8	

	NO: Noirmoutier	679.6	15,204	0.6	2.3		3.5	1.1		0.3
	PO: Port-en-Bessin	250.7	24,179	1.8	1.7		3.1	3.4	2.4	4.0
	QB: Quiberon	213.3	14,116	0.6	1.1	0.3	4.3	0.7	0.8	0.8
	RO: Roscoff	1,278.5	17,877	4.9	0.6		2.2	0.7	3.9	1.8
	RY: Royan	310.1	6,980	0.1	1.0	0.3	1.7	0.4		0.2
	SG: Saint Guénolé	1,970.2	40,581	5.8	2.7	9.5	2.7	3.0	6.0	2.7
	SJ: Saint-Jean de Luz	447.1	18,730	1.1	1.5	0.2	1.8	3.9	1.2	1.8
	SM: Saint-Malo	30.2	2,171	0.2	0.4		0.1		0.2	0.7
	SQ: Saint Quay Portrieux	1,431.1	41,042	6.5	4.6		2.9	1.2	7.0	9.6
	TB: La Turballe	1,203.6	36,639	1.9	2.9	0.2	6.8	4.1	3.9	4.3
	YE: Ile d'Yeu	682.4	12,544	0.8	1.4		3.1	1.1	0.2	
	All Atlantic markets	34,959.2	846,016	89.5	84.6	99.6	81.7	71.9	90.3	82.5
Mediterranean	34: Copemart	13.6	117					0.1		
	AG: Agde	281.3	27,380	2.4	2.7	0.1	2.7	4.4	1.0	3.3
	GO: Le Grau du Roi	476.2	49,248	1.1	5.1		7.4	7.7	1.1	6.1
	PB: Port de Bouc	589.2	15,769	0.8	2.3		1.9	0.1	3.6	3.5
	PN: Port La Nouvelle	273.6	21,872	1.5	2.1		2.1	4.0	0.8	2.5
	PV: Port Vendres	67.3	4,227	0.3	0.3		0.3	1.0	0.2	0.6
	ST: Sète	843.4	45,159	4.3	2.9	0.3	3.9	10.9	3.0	1.5
	All Mediterranean markets	2,544.4	163,772	10.5	15.4	0.4	18.3	28.1	9.7	17.5
All fish markets		37,503.6	1,009,788	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: RIC 2007, authors' calculations.

Table A2. Estimates of the Log Price of Fish, Pooled Species

Variables		(1)	(2)	(3)	(4)
Fish species (ref: Monkfish)	Sole			0.868***	0.855***
	Langoustine			0.335***	0.339***
	Sea bass			0.484***	0.444***
	Hake			-0.241***	-0.253***
	John Dory			0.511***	0.498***
	Squid			0.338***	0.317***
	Size (ref: 1 Large)	2			-0.071**
	3			-0.249***	-0.239***
	4			-0.413***	-0.404***
	5 (Small)			-0.603***	-0.581***
Presentation (ref: Whole)	Gutted			0.084**	0.068***
	Pieces			0.646***	0.612***
	Alive			0.388***	0.360***
Quality (ref: Extra)	B			-0.104***	-0.050***
	C (Low)			-0.701***	-0.594***

Month fixed effects	NO	YES	YES	YES
Seller fixed effects	NO	NO	NO	YES
Account fixed effects	NO	NO	NO	YES
Fish market fixed effects	YES	YES	YES	YES
Variance of fish market fixed effects	0.011	0.011	0.010	0.013
Number of observations	1,009,788	1,009,788	1,009,788	1,009,788
R ²	0.029	0.040	0.674	0.724

Source: RIC 2007, authors' calculations.

Note: (1), (2) and (3) are estimates from OLS models, (4) are estimates from fixed effect models. Standard errors clustered by fish market and month are in parentheses, significance levels being, respectively: 1% (***), 5% (**) and 10% (*). The variance of fish market fixed effects is computed using the number of transactions as weight.

Table A3. Estimates of the Log Price of Selected Species

Variables		Monkfish	Sole	Langoustine	Sea bass	Hake	John Dory	Squid
Size	2	0.032***	0.058***	-0.429***	-0.255***	-0.263***	-0.154***	0.114***
	(ref: 1 Big)	(0.004)	(0.015)	(0.029)	(0.007)	(0.018)	(0.007)	(0.015)
	3	-0.090***	-0.076***	-0.496***	-0.438***	-0.564***	-0.321***	0.081***
		(0.008)	(0.019)	(0.027)	(0.011)	(0.024)	(0.011)	(0.019)
	4	-0.130***	-0.233***	-0.846***		-0.881***	-0.660***	-0.003
	(0.009)	(0.022)	(0.030)		(0.026)	(0.016)	(0.021)	
	5 (Small)	-0.258***	-0.517***			-1.024***		-0.189***
		(0.011)	(0.032)			(0.033)		(0.029)
Presentation	Gutted	-0.192***	0.007			0.262***	0.052***	
	(ref: Entire)	(0.031)	(0.011)			(0.045)	(0.014)	
	Cut off	0.460***		-0.212***				
		(0.037)		(0.020)				
	Alive			0.264***				
				(0.027)				
	Fishing line				0.177***			
					(0.019)			
Quality	B	-0.017	-0.057***	-0.107***	-0.105***	-0.071***	-0.012	-0.112***
	(ref: Extra)	(0.011)	(0.007)	(0.032)	(0.014)	(0.021)	(0.015)	(0.015)

C (Low)	-0.511***	-0.571***	-1.184***	-0.679***	-0.570***	-0.679***	-1.209***
	(0.028)	(0.019)	(0.034)	(0.037)	(0.051)	(0.033)	(0.068)
Month fixed effects	YES	YES	YES	YES	YES	YES	YES
Seller fixed effects	YES	YES	YES	YES	YES	YES	YES
Account fixed effects	YES	YES	YES	YES	YES	YES	YES
Fish market fixed effects	YES	YES	YES	YES	YES	YES	YES
Variance of fish market fixed effects	0.016	0.010	0.030	0.015	0.115	0.013	0.051
Number of observations	144,436	245,987	91,888	182,885	196,950	54,113	93,529
R ²	0.796	0.623	0.757	0.745	0.662	0.660	0.715

Source: RIC 2007, authors' calculations.

Note: estimates from fixed effect models. Standard errors clustered by fish market and month are in parentheses, significance levels being, respectively: 1% (***), 5% (**) and 10% (*). The variance of fish market fixed effects is computed using the number of transactions as weight.

Table A4. Variance Decomposition of the Log Fish Price at the Transaction Level for the Seller and Account Fixed Effect Model, Pooled Species

Decomposition	All fish species	
Var(fish species)	0,1528	42,3%
Var(size + presentation + quality)	0,0646	17,9%
Var(month FE)	0,0036	1,0%
Var(seller FE)	0,0074	2,1%
Var(account FE)	0,0125	3,5%
Var(fish market FE)	0,0130	3,6%
2*Cov(fish species ; size + presentation + quality)	0,0120	3,3%
2*Cov(fish species ; month FE)	-0,0003	-0,1%
2*Cov(fish species ; seller FE)	0,0008	0,2%
2*Cov(fish species ; account FE)	0,0026	0,7%
2*Cov(fish species ; fish market FE)	-0,0103	-2,9%
2*Cov(size + presentation + quality ; month FE)	0,0003	0,1%
2*Cov(size + presentation + quality ; seller FE)	0,0026	0,7%
2*Cov(size + presentation + quality ; account FE)	0,0052	1,4%
2*Cov(size + presentation + quality ; fish market FE)	-0,0032	-0,9%
2*Cov(month FE ; seller FE)	0,0002	0,0%
2*Cov(month FE ; account FE)	0,0004	0,1%
2*Cov(month FE ; fish market FE)	-0,0006	-0,2%
2*Cov(seller FE ; account FE)	0,0011	0,3%
2*Cov(seller FE ; fish market FE)	-0,0035	-1,0%
2*Cov(account FE ; fish market FE)	0,0000	0,0%
Var(residual)	0,0999	27,6%
Var(gross price)	0,3613	

Source: RIC 2007, authors' calculations.

Note: the variance decomposition is based on estimates reported in Table A2. FE stands for fixed effects.

Table A5. Distance between Fish Markets (in Kilometers)

Variables	Monkfish	Sole	Langoustine	Sea bass	Hake	John Dory	Squid	All
All pairs of fish markets								
Average distance	370.9	392.0	297.2	392.0	385.8	396.7	400.5	386.5
Standard deviation	258.3	256.1	236.5	256.1	271.7	267.2	257.1	260.1
Fish markets: both on Atlantic coast								
Average distance	233.1	273.7	198.4	273.7	219.2	255.7	279.0	256.6
Standard deviation	144.8	170.0	143.6	170.0	140.0	162.6	171.8	163.1
Fish markets: both on Mediterranean coast								
Average distance	92.3	92.3	21.0	92.3	96.6	92.3	92.3	92.5
Standard deviation	46.8	46.8	-	46.8	51.8	46.8	46.8	47.1
Fish markets: one Atlantic, one Mediterranean								
Average distance	695.4	711.8	652.1	711.8	695.7	719.7	710.5	706.0
Standard deviation	134.3	133.8	135.1	133.8	139.7	129.8	135.0	134.7

Source: RIC 2007, authors' calculations.

Table A6. Regression of Fish Market Fixed Effects on a Dummy for Being on the Mediterranean Coast

Variables	All fish species	Monkfish	Sole	Langous- tine	Sea bass	Hake	John Dory	Squid
Constant	-0.031*** (0.000)	-0.036*** (0.000)	-0.003*** (0.000)	-0.003*** (0.001)	-0.039*** (0.000)	-0.154*** (0.001)	0.004*** (0.001)	-0.072*** (0.001)
Coast effect: Mediterranean	0.294*** (0.000)	0.346*** (0.001)	0.020*** (0.001)	0.736*** (0.008)	0.212*** (0.001)	0.549*** (0.001)	-0.037*** (0.002)	0.411*** (0.001)
Fish species (ref: Monkfish)								
Sole	-0.014*** (0.001)							
Langoustine	0.030*** (0.001)							
Sea bass	-0.023*** (0.001)							
Hake	-0.052*** (0.001)							
John Dory	0.002*** (0.001)							
Squid	-0.021*** (0.001)							
Number of fish markets	222	33	37	17	37	31	32	35

R ²	0.297	0.708	0.005	0.077	0.452	0.529	0.009	0.483
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Source: RIC 2007, authors' calculations.

Note: linear specification estimated by weighted least squares, where the weight is the number of transactions in the market. Standard errors are in parentheses, significance levels being, respectively: 1% (***), 5% (**) and 10% (*).